

**FUTURE FISHERIES IMPROVEMENT PROGRAM  
GRANT APPLICATION**

*(please fill in the highlighted areas)*

**I. APPLICANT INFORMATION**

A. Applicant Name: Beaverhead Watershed Committee/Beaverhead Conservation District

B. Mailing Address: 420 Barrett St.

C. City: Dillon State: MT Zip: 59725

Telephone: (406) 683-3802

D. Contact Person: Katie Tackett

Address if different from Applicant: \_\_\_\_\_

City: Dillon State: MT Zip: 59725

Telephone: (406) 988-0191

Landowner and/or Lessee Name  
E. (if other than Applicant): Montana Fish Wildlife and Parks

Mailing Address: Dillon Field Office, Fisheries Management 730 1/2 North Montana

City: Dillon State: MT Zip: 59725

Telephone: (406) 683-9310

Landowner and/or Lessee Name  
E. (if other than Applicant): George Gund III – Dennis Rehse (manager and contact)

Mailing Address: 2590 Carrigan Ln

City: Dillon State: MT Zip: 59725

Telephone: (406) 683 -6232

**II. PROJECT INFORMATION\***

A. Project Name: Poindexter Slough Fisheries Enhancement

River, stream, or lake: Stream

Location: Township 7S Range 9W Section 34, 35  
Township Range Section

County: Beaverhead County

B. Purpose of Project:

This project will improve the quality of Poindexter Slough, a unique spring creek-type fishery occurring primarily on public lands, by modifying irrigation infrastructure and adjusting channel dimensions to effectively convey fine sediment and maintain pool habitat using designed flushing flows. This project will also increase the quality and quantity of spawning habitat that support fisheries in Poindexter Slough and the Beaverhead River. Because the majority of this project occurs on lands administered by FWP and accessible to anglers, we expect that a direct and clear public benefit resulting from this project will be realized by a measurable increase in angler days spent on Poindexter Slough.

C. Brief Project Description:

Poindexter Slough is a 4.7 mile long valley-bottom channel of the Beaverhead River fed by a combination of groundwater and flow from the Beaverhead River. The lower 3.2 miles are located on a FWP Fishing Access Site and provide one of the few publically accessible spring creek angling experiences in southwest Montana. When good habitat conditions occur, abundances of over 2,000 adult trout per mile and excellent angling are supported by Poindexter Slough. Because of its accessibility and close proximity to the city of Dillon, Poindexter Slough is a heavily frequented sport fishery that has accommodated up to 4,095 angler days per year. Poindexter Slough is also important to the local economy of Dillon; during periods of high angler use it is estimated that over \$433,000 of direct expenditures are made annually in Beaverhead County by anglers fishing Poindexter Slough.

Periodic surveys completed by FWP have documented a steady decline in the fishery and angler use of Poindexter Slough over the past 12 years related to changes in irrigation practices. Abundances of adult brown trout declined from about 2,400 fish per mile in 1999 to between 500 and 1,000 fish per mile during most of the 2000's. Annual angler use declined commensurately during this period from over 4,000 angler days to a low of 610 angler days and average angler satisfaction rating transitioned from "excellent" to "poor." The observed declines are primarily related to indirect habitat degradation following conversion from flood to pivot irrigation in the areas surrounding Poindexter Slough. Poindexter Slough was traditionally fed largely by groundwater returning from flood irrigation. These "spring" sources were adequate to meet the irrigation demands of the Dillon Canal, which diverts its water right about half way down the slough, and create a very productive and stable spring creek fishery. As pivots replaced flood irrigation, groundwater inputs decreased and Poindexter Slough was supplemented with increasingly more water from the Beaverhead River in order to meet the Dillon Canal's water right.

Diverted Beaverhead River water carries and deposits a large amount of fine sediment into Poindexter Slough, which has progressively filled pool habitat and degraded riffle habitat. In addition to the aforementioned declines in fish abundance and angler use, aquatic insect habitat has been reduced as the streambed has been covered by fine sediment. Because Poindexter Slough is a relict Beaverhead River channel, it's present dimensions require relatively large flows of up to 500 cfs to most effectively mobilize and flush fine sediments from pools and riffles in some reaches. The present infrastructure allows a maximum of only about 50 cfs to be diverted from the Beaverhead River in addition to the up to 25 cfs of accreted flows Poindexter Slough gains over its length.

A 2,000 foot reach of stream backwatered by the Dillon Canal diversion further degrades habitat and complicates sediment transport issues in Poindexter Slough. A pin-and-plank diversion structure is presently used to raise water surface elevation several feet to serve an adjacent landowner's irrigation pump and feed the Dillon Canal. This structure results in seasonal creation of a small impoundment, which inundates 2,000 feet of stream habitat and captures sediment

throughout the irrigation season. Following irrigation, the boards are removed and the stream recolonizes a channel, resulting in relatively low quality habitat in the previously backwatered reach and transport of the sediment trapped there downstream, thereby causing further habitat degradation. Additionally, the present diversion structure serves as a seasonal barrier to upstream fish movements.

In order to effectively mobilize and transport fine sediment and restore better habitat conditions a larger flushing flow and elimination of backwatered reaches is required. Increasing the size of the Beaverhead River head gate would allow adequate flushing flows (150 to 200 cfs) in upper reaches, although it is infeasible to divert the volume of flow (~500 cfs) needed in the lower reaches of Poindexter Slough. However, adequate flushing flows can be achieved throughout Poindexter Slough by a combination of increasing the size of the Beaverhead River head gate and selectively narrowing the channel in lower reaches, which was the preferred alternative identified by the Preliminary Engineering Report (PER) (Attachment B). This alternative seeks to employ an active approach to channel enhancement by increasing the quantity and depth of pool habitat, restoring appropriate width-to-depth ratios for riffles and pools, removing or isolating fine sediment deposits from stream bed, and encouraging natural recruitment of willows and other woody riparian vegetation (see attached draft design). A new head gate would be installed at the top of Poindexter Slough to route flushing flows of adequate magnitude and duration to mobilize and transport sediment through the slough and maintain and rejuvenate habitat features. The Dillon Canal and adjacent channel of Poindexter Slough would be re-graded and sized such that its water right could be satisfied without changing water surface elevation during almost all flow conditions. To permanently eliminate backwatering and a barrier to fish movement, the pin-and-plank control structure at the Dillon Canal head gate would be either lowered in elevation such that it would only be needed in emergency situations or replaced with a buried rock control structure. A flow management plan that describes desired magnitude and duration of flushing flows required to mobilize various sized particles will be developed. A new grazing management plan would be implemented to promote recruitment of woody riparian vegetation on private land and willows would be transplanted to barren stream banks to improve cover.

This grant would be applied only towards 1) replacement of the Poindexter Slough headgate on the Beaverhead River to accommodate larger flushing flows, and 2) replacement of the Dillon Canal headgate and diversion structure, elimination of seasonal backwater and barrier to fish movement, and regrading and sizing of the channel adjacent to the diversion and throughout the previously backwatered reach.

D. Length of stream or size of lake that will be treated: 4.73 miles

E. Project Budget: \$372,184

Grant Request (Dollars): \$ 63,643

Contribution by Applicant (Dollars): \$ \_\_\_\_\_ In-kind \$ 4,455  
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): \$ 294,634 In-kind \$ 10,000  
(attach verification - See page 2 budget template)

**Total Project Cost:** \$ 372,182

Attach itemized (line item) budget – see template

F. Attachment A

- G. Attach specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support, and/or other information necessary to evaluate the merits of the project.

Attachment B – Preliminary Engineering Report (2010)

Attachment C – Preliminary Design Plans (November 2012)

Attachment D – Hydrologic Design Criteria – Memo (September 2012)

Attachment E – Hydrologic Design Criteria meeting notes and responses (October 2012)

Attachment F – Water rights clarification on Poindexter Slough

Attachment G – Letters of support

Attach land management and maintenance plans that will ensure protection of the reclaimed area.

- H. Attachment B, Pages 17,18

### III. PROJECT BENEFITS\*

- A. What species of fish will benefit from this project?:

Brown Trout, Mountain Whitefish, Rainbow Trout

- B. How will the project protect or enhance wild fish habitat?:

The project will enhance wild fish habitat by providing infrastructure capable of conveying flushing flows designed to mobilize and transport fine sediment that is presently degrading fish habitat throughout Poindexter Slough. This project will also reconfigure Dillon Canal irrigation infrastructure and the adjacent channel such that a seasonal backwater and barrier to fish movement are eliminated. These infrastructural changes, in combination with increasing the quantity and depth of deep pool habitat, restoring appropriate width-to-depth ratios for riffles and pools, removal or isolation of fine sediment deposits from the streambed, and encouraging natural recruitment of willows and other woody riparian vegetation, will restore the quality and quantity of spawning, rearing, and adult fish habitat and aquatic macroinvertebrate habitat that previously supported an excellent fish abundances and recreational fishery in Poindexter Slough. These improvements will have the added benefit of reducing thermal loading, reducing habitat for *Tubifex tubifex* (the intermediate host for whirling disease), and increasing aquatic insect populations.

- C. Will the project improve fish populations and/or fishing? To what extent?:

The proposed habitat modifications will result in increased fish abundances and improved angling. Providing the infrastructure needed to achieve periodic flows to flush sediment, eliminate an extensive backwatered reach and fish barrier, and complete active habitat restoration will increase and maintain high abundances of fish relative to the present state in Poindexter Slough. Under good habitat conditions that occurred prior to the progressive sediment loading this project seeks to address, abundances of over 2,000 adult trout per mile were supported by Poindexter Slough. There is a direct and strong correlation between abundance of adult trout and angler use and satisfaction on Poindexter Slough; pre-sedimentation trout abundances supported annual use of over 4,000 angler days and average rating by anglers as "excellent." Following sediment loading over the past 12 years adult fish abundances declined by 60 to 80%, angler use by 85%, and angler rating from "excellent" to "poor." It is our expectation that this project will result in a return to fish abundances and levels of angler use and satisfaction comparable to pre-sedimentation levels.



D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

Because the majority of this project occurs on lands administered by FWP and accessible to anglers, we expect that a direct and clear public benefit resulting from this project will be realized by a measurable increase in angler days spent on Poindexter Slough. Poindexter Slough is one of the few valley bottom spring creeks open to public fishing in southwest Montana; 3.2 of its 4.73 mile length are located on public lands. The declining fish population resulting from habitat degradation has been noted by area fishermen and guides, with fewer and fewer anglers visiting Poindexter Slough to fish. As described above, as many as 3,485 angler days have been lost annually on Poindexter Slough and angler ratings of the quality of their experience have declined precipitously. Because over 67% of Poindexter Slough occurs on a FWP Fishing Access Site these improvements to irrigation infrastructure, fisheries habitat, and fish abundances will uniquely translate directly into improved publically accessible recreational fishing opportunity.

E. If the project requires maintenance, what is your time commitment to this project?:

This project will require annual maintenance to coordinate, monitor, and execute flushing flows in Poindexter Slough. FWP is committed to overseeing and executing these tasks in perpetuity.

The ultimate success of this project will be quantified by changes in 1) fish abundances, 2), angler use, and 3) angler ratings of their quality of experience. FWP will monitor fish abundances annually for a period of no less than five years following completion of the project in its entirety. Additionally, Beaverhead Watershed Committee staff and volunteers will annually inspect channel. All monitoring data will be evaluated annually to determine whether project goals are being met and to identify potential maintenance needs. Any maintenance needs will be scheduled for repair and funded through additional grants as needed unless they are the result of design or installation errors, in which case they will be corrected by the design contractor and/or construction contractor.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

Habitat degradation of Poindexter Slough was indirectly caused by conversion from flood to pivot irrigation in the areas surrounding Poindexter Slough. Poindexter Slough was traditionally fed largely by groundwater returning from flood irrigation. These "spring" sources were adequate to meet the irrigation demands of the Dillon Canal, which diverts its water right about half way down the slough, and create a very productive and stable spring creek fishery. As pivots replaced flood irrigation, groundwater inputs decreased and Poindexter Slough was supplemented with increasingly more water from the Beaverhead River in order to meet the Dillon Canal's water right. Diverted Beaverhead River water carries and deposits a large amount of fine sediment into Poindexter Slough, which has progressively filled pool habitat and degraded riffle habitat. In addition to the aforementioned declines in fish abundance and angler use, aquatic insect habitat has been reduced as the streambed has been covered by fine sediment. Because Poindexter Slough is a relict Beaverhead River channel, it's present dimensions require relatively large flows of up to 500 cfs to most effectively mobilize and flush fine sediments from pools and riffles in some reaches. The present infrastructure allows a maximum of only about 50 cfs to be diverted from the Beaverhead River in addition to the up to 25 cfs of accreted flows Poindexter Slough gains over its length.

A 2,000 foot reach of stream backwatered by the Dillon Canal diversion further degrades habitat and complicates sediment transport issues in Poindexter Slough. A pin-and-plank diversion structure is presently used to raise water surface elevation several feet to serve an adjacent landowner's irrigation pump and feed the Dillon Canal. This structure results in seasonal creation of a small impoundment, which inundates 2,000 feet of stream habitat and captures sediment throughout the irrigation season. Following irrigation, the boards are removed and the stream

recolonizes a channel, resulting in relatively low quality habitat in the previously backwatered reach and transport of the sediment trapped there downstream, thereby causing further habitat degradation. Additionally, the present diversion structure serves as a seasonal barrier to upstream fish movements.

In order to effectively mobilize and transport fine sediment and restore better habitat conditions a larger flushing flow and elimination of backwatered reaches is required. Increasing the size of the Beaverhead River head gate would allow adequate flushing flows (150 to 200 cfs) in upper reaches, although it is infeasible to divert the volume of flow (~500 cfs) needed in the lower reaches of Poindexter Slough. However, adequate flushing flows can be achieved throughout Poindexter Slough by a combination of increasing the size of the Beaverhead River head gate and selectively narrowing the channel in lower reaches, which was the preferred alternative identified by the Preliminary Engineering Report (PER) (Attachment B). This alternative seeks to employ an active approach to channel enhancement by increasing the quantity and depth of pool habitat, restoring appropriate width-to-depth ratios for riffles and pools, removing or isolating fine sediment deposits from stream bed, and encouraging natural recruitment of willows and other woody riparian vegetation (see attached design). A new head gate would be installed at the top of Poindexter Slough to route flushing flows of adequate magnitude and duration to mobilize and transport sediment through the slough and maintain and rejuvenate habitat features. The Dillon Canal and adjacent channel of Poindexter Slough would be re-graded and sized such that its water right could be satisfied without changing water surface elevation during almost all flow conditions. To permanently eliminate backwatering and a barrier to fish movement, the pin-and-plank control structure at the Dillon Canal head gate would be either lowered in elevation such that it would only be needed in emergency situations or replaced with a buried rock control structure. A flow management plan that describes desired magnitude and duration of flushing flows required to mobilize various sized particles will be developed. A new grazing management plan would be implemented to promote recruitment of woody riparian vegetation on private land and willows would be transplanted to barren stream banks to improve cover.

This grant would be applied only towards 1) replacement of the Poindexter Slough headgate on the Beaverhead River to accommodate larger flushing flows, and 2) replacement of the Dillon Canal headgate and diversion structure, elimination of seasonal backwater and barrier to fish movement, and regrading and sizing of the channel adjacent to the diversion and throughout the previously backwatered reach.

G. What public benefits will be realized from this project?:

Because the majority of this project occurs on lands administered by FWP and accessible to anglers, we expect that a direct and clear public benefit resulting from this project will be realized by a measurable increase in angler days spent on Poindexter Slough. This project will improve the habitat quality of Poindexter Slough in perpetuity by modifying irrigation infrastructure and adjusting channel dimensions to effectively convey fine sediment and maintain pool habitat using designed flushing flows and increasing the quality and quantity of spawning habitat that support fisheries in Poindexter Slough and the Beaverhead River. These changes will restore habitat conditions similar to those that previously supported high abundances of adult trout and angler use. Because 67% of this project occurs on a FWP Fishing Access Site, these improvements to irrigation infrastructure, fisheries habitat, and fish abundances will uniquely translate directly into improved publically accessible recreational fishing opportunity.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

No. Please see the attached memorandum regarding the water rights implications of conveying flushing flows through the Poindexter Slough channel (Attachment F). Representatives of the Dillon Canal and local landowners have been involved with this project throughout the design phase and are providing comments on draft designs. The Beaverhead Watershed Committee and FWP will work closely with the Dillon Canal, Clark Canyon Joint Irrigation Board, Bureau of Reclamation, and all adjacent landowners to coordinate and develop a mutually acceptable flushing flow plan for Poindexter Slough.

I. Will the project result in the development of commercial recreational use on the site?: (explain):

Commercial recreational use is presently authorized and does occur on Poindexter Slough; this project will not develop new commercial recreational use. However, it is anticipated that improving the fishery in Poindexter Slough will provide local outfitters and guides with an additional opportunity for clients and possibly help to relieve fishing pressure on other nearby streams.

Because of its accessibility and close proximity to the city of Dillon, Poindexter Slough is a heavily frequented sport fishery that is important to the local economy, including both angling and non-angling related businesses. During periods of high fish abundance and angler use it is estimated that over \$433,000 of direct expenditures are made annually at Beaverhead County businesses by anglers fishing Poindexter Slough. At present fish abundances and levels of angler use these direct expenditures have decreased to approximately \$100,595.

J. Is this project associated with the reclamation of past mining activity?:

No.

Each approved project sponsor must enter into a written agreement with the Department specifying terms and duration of the project.

**IV. AUTHORIZING STATEMENT**

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Katie Tackett - Beaverhead Watershed Committee Coordinator Date: 11/29/12

Sponsor (if applicable): Jerry M. Meene B. G. D. Vice Chair

\*Highlighted boxes will automatically expand.

Mail To: Montana Fish, Wildlife & Parks  
Habitat Protection Bureau  
PO Box 200701  
Helena, MT 59620-0701

Incomplete or late applications will be returned to applicant.

Applications may be rejected if this form is modified.

\*\*\*Applications may be submitted at anytime, but must be received by the Future Fisheries Program office in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.\*\*\*